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EXAMINER	
WONG, ALAN	

ART UNIT	PAPER NUMBER
2817	

NOTIFICATION DATE	DELIVERY MODE
09/19/2008	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

PATDOCTC@fr.com

Office Action Summary	Application No.	Applicant(s)	
	10/544,136	DETLEFSEN ET AL.	
	Examiner	Art Unit	
	ALAN WONG	2817	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 June 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *21-32 and 34-42* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *39,40 and 42* is/are allowed.

6)☐ Claim(s) *21-32,34-38 and 41* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claim 21-32, 34-38, 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mita et al. (JP 2001-292050) in view of Bauer et al. (WO03/081773; using the equivalent US 7,304,553 as a translation), all of record.

4. With respect to claim 21, Mita et al. disclose an apparatus (Fig. 11) comprising: a piezoelectric substrate (130) comprising: a signal line comprising a first electrical port (136c) and a second electrical port (136a,b); a first partial filter (137, ladder filter with two series resonators and a parallel resonator); a second partial filter (135) connected in series with the first partial filter (137), the first partial filter (137) and the second partial

filter (135) being between the first (136c) and the second (136a,b) electrical ports; the first partial filter (137) comprises a first serial transducer (the first resonator reached from tracing at port 136c) and a second serial transducer (the second resonator reached from tracing at port 136c) located in series branches of the signal line; and the first and second serial transducer being electrically connected in series in the signal line (trace from port 136c to first and second serial transducer); and the second partial filter (134) comprises a first coupler transducer (132) and an end-positioned transducer (131) that are located in a 3-IDT structure (131,132,133), the end-positioned transducer (131) being positioned at an end of the signal line (131 directly connects with end terminal 136a,b, thus end of signal line); the 3-IDT structure (131, 132, 133) inherently is constructed in a DMS structure path as the 3-IDT structure is well known recognized DMS structure (e.g. US 6,504,454).

Mita et al. do not disclose explicitly the first serial transducer and the second serial transducer being located in an acoustic path and acoustically coupled with one another.

Bauer et al. disclose a two-series resonator and a parallel resonator ladder filter (e.g. Fig. 1) with a first (IS1) and a second (IS2) serial transducer located in series branches of signal line (T_1 to T_2), and are located in an acoustic path and acoustically coupled with one another (Col. 9 line 39-62), and the first (IS1) and second (IS2) serial transducer being electrically connected in series in the signal line (from T_1 to V1 to T_2; Col. 9 line 39-43).

At the time of the invention, it would have been obvious to use Bauer et al.'s ladder filter of two series resonator and a parallel resonator (as the first partial filter) in place of Mita et al.'s ladder filter (Mita: 137) of two series resonator and a parallel resonator. The suggestion to do so is to use Bauer et al.'s ladder filter is that Bauer et al.'s ladder filter provides less-loss and space-saving arrangement for the filter elements (Bauer: Abstract).

5. With respect to claim 22, the combination discloses the first electrical port (Mita: 136c) comprises an asymmetrical (i.e. unbalance) electrical port having a signal-conducting terminal (Mita: 136c).

6. With respect to claim 24, the combination discloses the second electrical port (Mita: 136a,b) comprises a symmetrical electrical port having multiple signal-conducting terminals (Mita: 136a,b).

7. With respect to claim 25, the combination discloses reflectors between the first (Bauer: IS1) and second (Bauer: IS2) serial transducers and electrically connected to one of the signal conducting terminals of the symmetrical electrical port (Mita: 136a,b) (Bauer: Col. 15 line 4-17 stated reflector, while not shown in figure, can exist between acoustically coupled transducers; connected to the symmetrical port (Mita: 136a,b) since the reflector would connects to the serial transducer (e.g. Bauer: IS2) which would connects to the output of ladder filter (Bauer: T_2; and the in turn through the second filter (Mita's filter 135) to the symmetrical port (Mita's port 136a,b).

8. With respect to claim 26, the combination discloses each of the acoustic path and the DMS path are bounded on both sides by reflectors (Mita: 134; Bauer: RS1, RS2; unlabelled boxes with a cross inside).

9. With respect to claim 27, the combination discloses the first partial filter (Mita: ladder filter 137, replaced by Bauer's filter) comprises one or more additional serial transducers (Bauer: Fig. 2 item IS3) in the acoustic path and in series branch of the signal line, the one or more additional serial transducers (Bauer: IS3) being electrical connected in series (through Bauer's T_1) with a first coupler transducer (Mita: 132) of the DMS path (Bauer: Fig. 2, Col. 15 line 4-17; Bauer et al. teach combination of varies embodiment can be used, thus Fig. 2 teaches additional serial transducer in the same acoustic path that can be employed with Fig. 1).

10. With respect to claim 28, the combination discloses the second partial filter (Mita: 135) comprises a second coupler transducer (Mita: 133).

11. With respect to claim 29, the combination discloses the first (Mita: 132) and second (Mita: 133) coupler transducers and the end-positioned transducers (Mita: 131) located in the DMS path are arranged substantially alternately (arranged from left to right as coupler transducer 132, end-positioned transducer 131, coupler transducer 133; thus alternately between coupler transducer and end-position transducer).

12. With respect to claim 30, the combination discloses reflectors between the first (Bauer: IS1) and second (Bauer: IS2) (Bauer: Col. 15 line 4-17, reflector, not shown, can exist between acoustically coupled transducers).

13. With respect to claim 31, the combination discloses the first electrical port (Mita: 136c) is electrically connected to the first partial filter (Mita: ladder filter 137, which is replaced by Bauer's Fig. 1); the second electrical port (Mita: 136a,b) is electrically connected to the end-positioned transducer (Mita: 131); and the first coupler transducer (Mita: 132) is electrically connected in series with at least the first or second serial transducer (Mita's coupler transducer 132 is coupled to the ladder filter, which is Bauer's Fig. 1 in the combination, and since the first (Bauer: IS1) or second (Bauer: IS2) serial transducers are in the series branch, they are in series with Mita's coupler transducer 132 in the combination).

14. With respect to claim 32, the combination discloses the first partial filter (Mita: 137, replaced by Bauer's Fig. 1) comprises an additional acoustic path (associated with IP) that is electrically connected with the first electrical port (through Bauer's IS1), the additional acoustic path comprising a parallel transducer (Bauer: IP) that is electrically connected between the signal line and ground (see Bauer: Fig. 1).

15. With respect to claim 34, the combination discloses the end-positioned transducer (Mita: 131) comprises at least two partial transducers (Mita: 131a,b) that are electrically connected with one another (as shown in the drawing with a bar in between) and electrically connected in series between signal conducting terminals of the second electrical port (Mita: 136a,b).

16. With respect to claim 35, the combination discloses a signal conducting terminal of the first electrical port (Mita: 136c, which would correspond to Bauer's T_1 in the

combination) is electrically connected to at least one of the first (Bauer: IS1) and second (Bauer: IS2) serial transducer.

17. With respect to claim 36, the combination discloses the first partial filter (Mita: ladder filter 137, replaced by Bauer's filter) has an additional acoustic path (Bauer: Fig. 4: one of path for IS1 and IS4, or for IS2 and IS3) that has at least one serial transducer (IS1-IS4), the additional acoustic path being electrically connected with the first electrical port (through Bauer's T_1 to Mita's 136c) and being along the signal line (Bauer: Fig. 4, Col. 15 line 4-17; Bauer et al. teach combination of various embodiments can be used, thus Fig. 4 teaches additional acoustic path that can employed with Fig.1).

18. With respect to claim 37, the combination discloses the second partial filter (Mita: 135) further comprises a second coupler transducer (Mita: 133).

19. With respect to claim 38, the combination discloses the end-positioned transducer (Mita: 131) is between the first (Mita: 132) and second (Mita: 133) coupler transducers.

20. With respect to claim 41, the combination discloses a serial resonator (Bauer: Fig. 2 item IS3) between the first electrical port (Bauer's T_1, Mita's 136c) and the end-positioned transducer (Mita: 131), the serial resonator having a constituent transducer (Bauer: IS3) and reflectors (boxes with cross) that bounded the constituent transducer (Bauer: IS3) on both sides (note that one of the reflector is through IS2, IS1; the claim does not required the reflectors be directly next to the side of the transducer)(Fig. 2, Col. 15 line 4-17; Bauer et al. teach combination of varies embodiment can be used, thus Fig. 2 teaches additional serial resonator that can employed with Fig. 1).

21. Alternately, with respect to claim 21, Mita et al. discloses an apparatus (Fig. 11) comprising: first electrical port (136a,b), second electrical port (136c), and the other claimed elements as disclosed above. Mita et al. do not disclose explicitly the first and second serial transducer being located in an acoustic path and acoustically coupled with one another. Bauer et al. disclose a two-series and a parallel resonator as claimed detailed above. At the time of the invention, it would have been obvious to use Bauer et al.'s ladder filter in place of Mita et al.'s ladder filter as suggested above (see numbered para. 4).

22. With respect to claim 23, the combination under the alternative view with first electrical port as port 136a,b (from Mita) and a second electrical port as port 136c (from Mita), thereby having the second electrical port comprises an asymmetrical electrical port having a signal-conducting terminal (Mita: 136b).

Response to Arguments/Amendments

23. Applicant's arguments/Amendments filed 6/26/2008 have been fully considered but they are not persuasive.

24. The rejections using Takahashi (WO01/56151) and Hagn et al. (WO01/71911) have been withdrawn.

25. In Page 15 of the reply filed on 6/26/08, Applicants incorrectly stated that the "office action [mailed on 2/29/2008] (page 10) equates the first and second interdigital transducers IS1 and IS2 of Bauer, Fig. 1, to the first partial filter and the second partial filter, respectively, of Applicants' claims." The office action mailed on 2/29/2008 as well as this office action stated IS1 and IS2 are only first and second serial transducer of a

ladder filter which equates to Applicants' first partial filter. Applicants alleged (in Page 16 of the reply) that the "resulting device still would not provide first and second serial transducers which are, in addition to being acoustically coupled and located in the same acoustic path, also electrically connected in series" is inaccurate. The first (IS1) and second (IS2) serial transducer (from Bauer, Fig. 1) showed acoustically coupled and located in the same acoustic path (with double arrow K), and electrically connected in series (T_1 to V1 to T_2) (Bauer: Col. 9 line 39-47).

26. Note that the rejection is maintained as Non-Final since claim 23 and 38 were not rejected by the same rejection in the last office action.

Allowable Subject Matter

27. Claim 39, 40, 42 are allowed.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ALAN WONG whose telephone number is (571)272-3238. The examiner can normally be reached on Mon-Thurs 8:00am-5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bob Pascal can be reached on (571) 272-1769. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/BENNY LEE/
PRIMARY EXAMINER
ART UNIT 2817

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